Amendments to the Specification:

Please amend the specification as follows:

Please replace the paragraph beginning at page 3, line 5 with the following amended paragraph.

Because volumes do not necessarily reside on mirrored physical devices, it is desirable also, to ensure load balancing over the non-mirrored physical devices. Another technique, described in U.S. application Serial No. 09/382,752 now U.S. Patent No. 6,611,896, filed August 25, 1999, and entitled Dynamic Mirror Service Policy With Seek Adjustment in a Non-Physical Mirrored Storage Environment, the contents of which are incorporated herein, by reference, provides for a seek minimization to adjust seek activity when logical volumes, but not necessarily physical devices, are mirrored.

Please replace the paragraph beginning at page 4, line 27 with the following amended paragraph.

FIGS. ~~4 is~~4A and 4B are flow diagrams illustrating an expedited mirror service policy process for the disk director shown in FIG. 3.

Please replace the paragraph beginning at page 5, line 3 with the following amended paragraph.

FIG. 5 is an example of simulated policy changes as performed by the process (of FIGS. 4A and 4B) for physical mirrors.

Please replace the paragraph beginning at page 5, line 5 with the following amended paragraph.

FIG. 6 is an example of simulated policy changes as performed by the process (of FIGS. 4A and 4B) for non-physical mirrors.

Please replace the paragraph beginning at page 13, line 9 with the following amended paragraph.

Referring to FIGS. 4A and B, a flow diagram illustrating the expedited DMSP process 72 is shown. The process 72 begins 80 by collecting statistics such as activity

level and utilization for all of the physical devices (step 82). Once the time has come to reconsider logical volume mirror policies, the statistics are reviewed to determine the top n most active or busiest of the physical devices (step 84). The n busiest physical devices are sorted by activity level from most active to least active (step 86). The process 72 selects the first physical device on the sorted list, that is, the busiest disk (step 88). The process 72 temporarily assigns volumes in the first half of the selected physical device to itself and the remainder to corresponding mirror or mirrors (step 90). This change serves to minimize seeks, but does not guarantee load balance. The process computes or determines the utilization of the selected physical device with this temporary DMSP policy (step 92). The process 72 determines if the utilization of the selected physical device is less than a utilization threshold (step 93). In the described embodiment, the utilization threshold is 50%. The value of n and the utilization threshold are user-defined and are included in the DMSP parameter data 74 stored in the parameter store 60 (fro m FIG. 3).

Please replace the paragraph beginning at page 18, line 4 with the following amended paragraph.

Referring to FIGS. 4A, 4B and 5, the process 72 selects LV_4 to be moved from M1 to M2 (step 100). It computes the respective initial cost function values C(M1) and C(M2) of the physical devices M1, M2 as 100 and 50, respectively (step 102), and determines a maximum of the computed values, that is, 100 (step 104). After the simulated first policy move (step 106), the process 72 recomputes the cost functions C(M1)and C(M2) as 80 and 70, respectively (step 108), and determines 80 to be the maximum value (step 110). The process 72 also evaluates an interleaved move (step 112), that is, moving only the second half of LV_4 from M1 to M2. The process 72 computes C(M1) and C(M2) for the interleave as 90 and 75, respectively (step 114), with a maximum value of 90. As the maximum value of 80 for the first policy change is the minimum of the three maximum cost function values, the process 72 proceeds to evaluate LV_3, for transfer from M1 to M2 (step126).

Please replace the paragraph beginning at page 19, line 16 with the following amended paragraph.

Referring to FIGS. 4A, 4B, and 6, the processing for the non-physical mirrored arrangement is much the same as it is for a physical mirrored arrangement (such as the arrangement depicted in FIG. 5) except that maximum cost function determinations must take into account all of the physical devices on which logical mirrored pairs reside. For the example shown in FIG. 6, the physical device P1 is the physical device under evaluation. It includes six logical volumes, LV_1 through LV_6. According to the existing mirror service policy, LV_1 through LV_3 are serviced by P1 and LV_4 through LV_6 are serviced by P4. Mirrored copies of LV_1 and LV_2 are maintained by P2 and a mirrored copy of LV_3 is maintained by P3. If the process 72 determines that the utilization of P1 is less than the threshold, then the border between LV_3 and LV_4 remains fixed, that is, P1 will service LV_1 through LV_3, and P4 will service LV_4 through LV_6 (at least until the next updating occurs). If the utilization is determined to be greater than the threshold, the process attempts to move the border in the direction of the solid arrow, one logical volume (or half volume, in the interleaved case) at a time). Thus, the process 72 tries to reassign the work for LV_3 to P3, and possibly the work for LV_1/ LV_2 to P2, in the manner described above, with the objective of reducing the worst case cost function with each successive iteration until the worst case cost function can be reduced no further.